Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (withdrawn): A method for etching a silicon substrate, comprising:

forming an etching mask on a silicon substrate surface; and

performing an etching step for forming a predetermined structured surface by dry etching said silicon substrate surface, wherein

said etching step comprises repeating in sequence:

advancing said dry etching primarily at an etching ground using an etching gas and a protective film forming gas;

forming a protective film using said protective film forming gas on a structured surface formed by said dry etching; and

removing said protective film formed on said etching ground.

Claim 2 (withdrawn): A method for etching a silicon substrate according to claim 1 wherein a small amount of said protective film forming gas is supplied during advancing the dry etching and a large amount of said protective film forming gas is supplied in forming said protective film.

Claim 3 (withdrawn): A method for etching a silicon substrate according to claim 1, wherein a bias voltage is provided by applying electrical power to said silicon substrate during advancing the dry etching and removing said protective film or during removing said protective film.

Claim 4 (withdrawn): A method for etching a silicon substrate according to claim 1, wherein a reactive gas is used for said etching gas.

Claim 5 (withdrawn): A method for etching a silicon substrate, comprising repeating in sequence:

forming an etching mask on a silicon substrate surface; and

performing an etching step for forming a predetermined structured surface by dry etching said silicon substrate surface through an opening in said etching mask using an etching gas converted to plasma via high-frequency electrical power, wherein

said etching step comprises repeating in sequence:

advancing primarily dry etching of an etching ground using an etching gas and a protective film forming gas; and

forming a protective film primarily on a structured surface perpendicular to said etching ground using an etching gas and a protective film forming gas.

Claim 6 (withdrawn): A method for etching a silicon substrate according to claim 5, wherein a small amount of said protective film forming gas is supplied during advancing the dry etching and a large amount of said protective film forming gas is supplied in forming the protective film.

Claim 7 (withdrawn): A method for etching a silicon substrate according to claim 5, wherein a bias potential is provided by continuously applying electrical power to said silicon substrate during said etching step.

Claim 8 (withdrawn): A method for etching a silicon substrate according to claim 7, wherein electrical power applied to said silicon substrate is set high during advancing the dry etching and is set low during forming the protective film.

Claim 9 (withdrawn): A method for etching a silicon substrate according to claim 5, wherein a reactive gas is used for said etching gas.

Claim 10 (withdrawn): A method for etching a silicon substrate, comprising repeating in sequence:

forming an etching mask on a silicon substrate surface; and

performing an etching step for forming a predetermined structured surface by dry etching said silicon substrate surface through an opening in said etching mask using an etching gas converted to plasma via high-frequency electrical power, wherein

said etching step comprises repeatedly performing in sequence:

providing a bias voltage by continuously applying electrical power to said silicon substrate during said etching step,

advancing primarily dry etching of an etching ground using an etching gas and a protective film forming gas; and

forming a protective film primarily on a structured surface perpendicular to said etching ground using an etching gas and a protective film forming gas.

Claim 11 (withdrawn): A method for etching a silicon substrate according to claim 10, wherein a small amount of said protective film forming gas is supplied

during advancing the dry etching and a large amount of said protective film forming gas is supplied in forming the protective film.

Claim 12 (withdrawn): A method for etching a silicon substrate according to claim 10, wherein electrical power applied to said silicon substrate is set high during advancing the dry etching and is set low during forming the protective film.

Claim 13 (withdrawn): A method for etching a silicon substrate according to claim 10, wherein a reactive gas is used for said etching gas.

Claim 14 (withdrawn): A method for etching a silicon substrate according to claim 13, wherein

an etching gas and a protective film forming gas converted to plasma are used; and

said high-frequency electrical power used when generating plasma is set high during advancing the dry etching and set low during forming the protective film.

Claim 15 (currently amended): A device for etching a silicon substrate, the device comprising:

an etching chamber for housing ~~a~~ silicon substrates ~~serving as an item~~ to be etched;

a base on which the substrates are loaded, the base disposed ~~below~~ in a bottom location inside said etching chamber ~~and on which said silicon substrate is mounted~~;

~~means for supplying an etching gas to said etching chamber~~ a gas-supply unit including etching and protective-film-forming gas cylinders and mass-flow controllers,

said gas-supply unit connected to the etching chamber via gas-supply lines with said mass-flow controllers intervening;

~~means for supplying a protective film forming gas to said etching chamber;~~

~~means for reducing pressure in~~ a pressure-reduction unit connected to said etching chamber via an exhaust line;

~~means for generating~~ a plasma-generating unit [[,]] including a coil disposed ~~at an~~ along the outer ~~perimeter~~ periphery of ~~said etching chamber~~ and opposing said etching chamber, ~~wherein~~ and a first RF power supply for applying high-frequency ~~electrical~~ power ~~is applied~~ to said coil, ~~and~~ thereby to convert into plasma ~~the~~ etching gas and ~~the~~ protective-film-forming gas supplied into said etching chamber ~~are~~ by said gas-supply unit ~~converted to plasma~~;

~~means for applying~~ a second RF power supply for applying high-frequency ~~electrical base~~ power to said base;

~~means for~~ a gas flow controller connected to said mass-flow controllers in said gas-supply unit, said gas flow controller configured to control[[ling]] said mass-flow controllers so that said gas-supply unit delivers ~~gas flow of said~~ the etching gas into said etching chamber at an intermittent flow obeying a predetermined rectangular waveform varying between zero and a predetermined value, and delivers ~~said~~ the protective--film-forming gas ~~supplied~~ into said etching chamber at a continuous flow ~~by said etching gas supplying means and said protective film forming gas supplying means~~;

a coil-power controller ~~means~~ for controlling ~~electrical coil~~ the power applied by said first RF power supply to said coil in said plasma generating ~~means~~ unit; and

a base-power controller ~~means~~ for controlling ~~electrical~~ the power applied by said second RF power supply to said base ~~by said high-frequency electrical base power applying means; wherein~~

~~said gas flow controlling means is formed so that said protective film forming gas is continuously supplied to said etching chamber and said etching gas is intermittently supplied to said etching gas~~.

Claim 16 (currently amended): A silicon-substrate etching device ~~for etching a silicon substrate~~ according to claim 15, wherein said gas flow controller~~ing means supplies a large amount~~ is further configured to increase the volume of ~~said~~ the protective-film-forming gas that said gas flow controller delivers ~~to said etching chamber~~ when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas is ~~not being supplied~~ zero, and ~~a small amount~~ to decrease the volume of said protective film forming gas that said gas flow controller delivers ~~to said etching chamber~~ when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas is ~~being supplied~~ goes to the predetermined value.

Claim 17 (currently amended): A silicon-substrate etching device ~~for etching a silicon substrate~~ according to claim 15, wherein said ~~electrical~~ base-power controller~~ing means~~ is configured to control said second RF power supply to vary periodically ~~changes said~~ the ~~electrical~~ power said second RF power supply applies[[d]] to said base, so that said second RF power supply applies[[ying]] lower

~~electrical~~ power to said base when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas is ~~not being supplied~~ zero, and applies[[ying]] higher ~~electrical~~ power to said base when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas ~~is being supplied~~ goes to the predetermined value.

Claim 18 (currently amended): A silicon-substrate etching device for ~~etching a silicon substrate~~ according to claim 15, wherein said ~~electrical~~ coil-power controller~~ing means~~ is configured to control said first RF power supply to vary periodically ~~changes~~ the power said first RF power supply applies[[d]] to said coil, so that said first RF power supply applies[[ying]] lower ~~electrical~~ power to said coil when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas is ~~not being supplied~~ zero, and applies[[ying]] higher ~~electrical~~ power when said intermittent flow at which said gas flow controller delivers ~~said~~ the etching gas ~~is being supplied~~ goes to the predetermined value.

Claim 19 (currently amended): A device for etching ~~etching~~ a silicon substrate, the device comprising:

an etching chamber for housing ~~a~~ silicon substrates ~~serving as an item~~ to be etched;

a base on which the substrates are loaded, the base disposed ~~below~~ in a bottom location inside said etching chamber ~~and on which said silicon substrate is mounted~~;

~~means for supplying an etching gas to said etching chamber~~ a gas-supply unit including etching and protective-film-forming gas cylinders and mass-flow controllers, said gas-supply unit connected to the etching chamber via gas-supply lines with said mass-flow controllers intervening;

~~means for supplying a protective film forming gas to said etching chamber;~~

~~means for reducing pressure in~~ a pressure-reduction unit connected to said etching chamber via an exhaust line;

~~means for generating~~ a plasma-generating unit[[,]] including a coil disposed ~~at an~~ along the outer ~~perimeter~~ periphery of ~~said etching chamber~~ and opposing said etching chamber, ~~wherein~~ and a first RF power supply for applying high-frequency ~~electrical~~ power ~~is applied~~ to said coil, ~~and~~ thereby to convert into plasma ~~the~~ etching gas and ~~the~~ protective-film-forming gas supplied into said etching chamber ~~are~~ by said gas-supply unit ~~converted to plasma~~;

~~means for applying~~ a second RF power supply for applying high-frequency ~~electrical base~~ power to said base;

~~means for~~ a gas flow controller connected to said mass-flow controllers in said gas-supply unit, said gas flow control means configured to control[[ling]] said mass-flow controllers so that said gas-supply unit delivers ~~gas flow of said~~ the etching gas into said etching chamber at a volume-variant flow obeying a first predetermined rectangular waveform, and delivers ~~said~~ the protective-film-forming gas ~~supplied~~ into said etching chamber at a volume-variant flow [[by]] obeying a second predetermined rectangular waveform whose phase is the inverse of that of said first

predetermined rectangular waveform ~~said etching gas supplying means and said protective film forming gas supplying means~~;

a coil-power controller ~~means~~ for controlling ~~electrical coil~~ the power applied by said first RF power supply to said coil in said plasma generating ~~means~~ unit; and

a base-power controller ~~means~~ for controlling ~~electrical~~ the power applied by said second RF power supply to said base ~~by said high-frequency electrical base power applying means; wherein~~

~~said gas flow controlling means is formed so that said etching gas and said protective film forming gas are continuously supplied to said etching chamber while flows thereof are periodically changed, with said flows being controlled so that phases thereof are opposite of each other~~.

Claim 20 (currently amended): A silicon-substrate etching device ~~for etching a silicon substrate~~ according to claim 19, wherein said ~~electrical~~ base-power controller~~ing means~~ is configured to control said second RF power supply to vary periodically ~~changes~~ the ~~electrical~~ power said second RF power supply applies[[d]] to said base, so that said second RF power supply applies[[ying]] lower ~~electrical~~ power to said base ~~when a small amount of~~ during the troughs in the first predetermined rectangular waveform, as characterizing said volume-variant flow at which said gas flow controller delivers ~~said~~ the etching gas, ~~is being supplied~~ and applies[[ying]] higher ~~electrical~~ power to said base ~~when a large amount of said etching gas is being supplied~~ during the peaks in the first predetermined rectangular waveform.

Claim 21 (currently amended): A[[n]] silicon-substrate etching device ~~for etching a silicon substrate~~ according to claim 19, wherein said ~~electrical~~ coil-power controller~~ing means~~ is configured to control said first RF power supply to vary periodically ~~changes~~ the ~~electrical~~ power said first RF power supply applies[[d]] to said coil, so that said first RF power supply applies[[ying]] lower electrical power ~~when a small amount of~~ during the troughs in the first predetermined rectangular waveform, as characterizing said volume-variant flow at which said gas flow controller delivers ~~said~~ the etching gas~~, is being supplied~~ and applies[[ying]] [[a]] higher ~~electrical~~ power to said coil ~~when a large amount of said etching gas is being supplied~~ during the peaks in the first predetermined rectangular waveform.

Claim 22 (currently amended): A device for etching a silicon substrate, the device comprising:

an etching chamber for housing ~~a~~ silicon substrates ~~serving as an item~~ to be etched;

a base on which the substrates are loaded, the base disposed ~~below~~ in a bottom location inside said etching chamber ~~and on which said silicon substrate is mounted~~;

~~means for supplying an etching gas to said etching chamber~~ a gas-supply unit including etching and protective-film-forming gas cylinders and mass-flow controllers, said gas-supply unit connected to the etching chamber via gas-supply lines with said mass-flow controllers intervening;

~~means for supplying a protective film forming gas to said etching chamber;~~

~~means for reducing pressure in~~ a pressure-reduction unit connected to said etching chamber via an exhaust line;

~~means for generating~~ a plasma-generating unit[[,]] including a coil disposed ~~at an~~ along the outer ~~perimeter~~ periphery of ~~said etching chamber~~ and opposing said etching chamber, ~~wherein~~ and a first RF power supply for applying high-frequency ~~electrical~~ power ~~is applied~~ to said coil, ~~and~~ thereby to convert into plasma ~~the~~ etching gas and ~~the~~ protective-film-forming gas supplied into said etching chamber ~~are~~ by said gas-supply unit ~~converted to plasma~~;

~~means for applying~~ a second RF power supply for applying high-frequency ~~electrical base~~ power to said base;

~~means for~~ a gas flow controller connected to said mass-flow controllers in said gas-supply unit, said gas flow controller configured to control[[ling]] said mass-flow controllers so that said gas-supply unit delivers ~~gas flow of said~~ the etching gas into said etching chamber at a first predetermined flow, and delivers ~~said~~ the protective-film-forming gas ~~supplied~~ into said etching chamber at a second predetermined flow ~~by said etching gas supplying means and said protective film forming gas supplying means~~;

a coil-power controller ~~means~~ for controlling ~~electrical coil~~ power applied by said first RF power supply to said coil in said plasma generating ~~means~~ unit; and

a base-power controller ~~means for~~ configured to control[[ling]] said second RF power supply to vary periodically the ~~electrical base~~ power said second RF power

supply applies[[d]] to said base ~~by said high-frequency electrical base power applying means; wherein~~

~~said electrical base power controlling means is formed so that said electrical power applied to said base is periodically changed~~.

Claim 23 (currently amended): A silicon-substrate etching device for ~~etching a silicon substrate~~ according to claim 22, wherein said coil-power controller ~~means for controlling electrical coil power~~ is configured to control said first RF power supply to vary periodically ~~changes said electrical~~ the power said first RF power supply applies[[d]] to said coil.

Claim 24 (currently amended): A device for etching a silicon substrate, the device comprising:

an etching chamber for housing [[a]] silicon substrates ~~serving as an item~~ to be etched;

a base on which the substrates are loaded, the base disposed ~~below~~ in a bottom location inside said etching chamber ~~and on which said silicon substrate is mounted~~;

~~means for supplying an etching gas to said etching chamber~~ a gas-supply unit including etching and protective-film-forming gas cylinders and mass-flow controllers, said gas-supply unit connected to the etching chamber via gas-supply lines with said mass-flow controllers intervening;

~~means for supplying a protective film forming gas to said etching chamber;~~

~~means for reducing pressure in~~ a pressure-reduction unit connected to said etching chamber via an exhaust line;

~~means for generating~~ a plasma-generating unit[[,]] including a coil disposed ~~at an~~ along the outer ~~perimeter~~ periphery of ~~said etching chamber~~ and opposing said etching chamber, ~~wherein~~ and a first RF power supply for applying high-frequency ~~electrical~~ power ~~is applied~~ to said coil, ~~and~~ thereby to convert into plasma ~~the~~ etching gas and ~~the~~ protective-film-forming gas supplied into said etching chamber ~~are~~ by said gas-supply unit ~~converted to plasma~~;

~~means for applying~~ a second RF power supply for applying high-frequency ~~electrical base~~ power to said base;

~~means for~~ a gas flow controller connected to said mass-flow controllers in said gas-supply unit, said gas flow controller configured to control[[ling]] said mass-flow controllers so that said gas-supply unit delivers ~~gas flow of said~~ the etching gas into said etching chamber at a first predetermined flow, and delivers ~~said~~ the protective-film-forming gas ~~supplied~~ into said etching chamber at a second predetermined flow ~~by said etching gas supplying means and said protective film forming gas supplying means~~;

a coil-power controller ~~means for~~ configured to control[[ling]] said first RF power supply to vary periodically the ~~electrical coil~~ power said first RF power supply applies[[d]] to said coil in said plasma generating ~~means~~ unit; and

a base-power controller ~~means~~ for controlling electrical power applied by said second RF power supply to said base ~~by said high-frequency electrical base power applying means; wherein~~

~~said electrical coil power controlling means is formed so that electrical power applied to said coil is periodically changed~~.